

WHAT IS CLAIMED IS:

1. A low profile antenna for use in a vehicle remote communication system, comprising:

5 a printed circuit board having a ground plane mounted on a first side thereof;  
a dielectric spacer mounted to said first side of said printed circuit board;  
a lineal antenna trace disposed on said dielectric spacer; and  
a transmission line having first and second signal conductors, said first  
conductor being coupled to a feed point on said lineal antenna trace and said second  
10 conductor being coupled to both said ground plane and a second point on said lineal  
antenna trace spaced from said feed point.

2. The antenna according to claim 1 wherein said dielectric spacer is  
mounted to said ground plane.

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3. The antenna according to claim 1 wherein said lineal antenna trace  
includes a middle region and first and second end regions.

4. The antenna according to claim 3 wherein said feed point is located at a  
20 one of said first and second end regions and said second point is located at said  
middle region.

5. The antenna according to claim 1 wherein said antenna is an active  
antenna further comprising a plurality of active components mounted a second  
25 side of said printed circuit board, and wherein said first conductor is coupled to at  
least one of said active components.

6. The antenna according to claim 5 wherein at least one of said active  
components is a low noise amplifier.

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7. The antenna according to claim 1 wherein said dielectric material is plastic foam.

8. The antenna according to claim 1 wherein said lineal antenna trace is spaced apart by a predetermined distance from said ground plane.

9. The antenna according to claim 1 wherein said feed point and said second point of said lineal antenna trace are spaced apart by a predetermined distance.

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10. The antenna according to claim 1 wherein said lineal antenna trace is formed in a serpentine configuration.

11. The antenna according to claim 1 wherein said lineal antenna trace includes a substantially planar portion.

12. The antenna according to claim 1 wherein said printed circuit board is a multi-layer printed circuit board and wherein said ground plane is mounted on a first layer of said circuit board, and a second layer of said circuit board is disposed between said ground plane and said dielectric spacer.

13. A low profile antenna for use in a vehicle remote communication system, comprising:

a printed circuit board having a ground plane mounted on a first side thereof;  
an intermediate support member mounted to said first side of said printed circuit board;

a lineal antenna trace mounted to said support member and spaced apart from said ground plane by a predetermined distance; and

a transmission line having first and second signal conductors, said first conductor being coupled to a feed point on said lineal antenna trace and said second

conductor being coupled to both said ground plane and a second point on said lineal antenna trace spaced from said feed point.

14. The antenna according to claim 14 wherein said lineal antenna trace is  
5 formed in a serpentine configuration.

15. The antenna according to claim 14 wherein said lineal antenna trace includes a substantially planar portion.

10 16. The antenna according to claim 14 wherein said printed circuit board is a multi-layer printed circuit board and wherein said ground plane is mounted on a first layer of said circuit board, and a second layer of said circuit board is disposed between said ground plane and said dielectric spacer.

15 17. The antenna according to claim 14 wherein said lineal antenna trace includes a middle region and first and second end regions.

18. The antenna according to claim 17 wherein said feed point is located at a one of said first and second end regions and said second point is located at said  
20 middle region.

19. The antenna according to claim 14 wherein said feed point and said second point of said lineal antenna trace are spaced apart by a predetermined distance.

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20. A low profile antenna for use in a vehicle remote communication system utilizing a predetermined RF signal, comprising:

a mounting substrate providing a ground plane;

an intermediate support member mounted to said mounting substrate;

30 a lineal antenna trace mounted to said support member and spaced apart from

said ground plane by a predetermined distance, said lineal antenna trace including a middle region and first and second end regions; and

a transmission line having first and second signal conductors, said first conductor being coupled to a feed point on said lineal antenna trace and said second  
5 conductor being coupled to both said ground plane and a second point on said lineal antenna trace spaced from said feed point,

wherein said feed point is located at a one of said first and second end regions and said second point is located at said middle region said feed point, and

wherein said feed point and said second point are spaced apart by a  
10 predetermined distance less than one quarter wavelength of said RF signal.